

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2002-353631

(43)Date of publication of application : 06.12.2002

(51)Int.Cl.

H05K 3/46

H05K 1/03

H05K 1/11

H05K 3/00

H05K 3/42

(21)Application number : 2001-158704 (71)Applicant : MATSUSHITA ELECTRIC  
IND CO LTD

(22)Date of filing : 28.05.2001 (72)Inventor : MATSUO MITSUHIRO  
HANDA HIROYUKI  
HIRANO KOICHI  
NAKATANI SEIICHI

## (54) CIRCUIT BOARD AND MANUFACTURING METHOD THEREOF

(57)Abstract:

**PROBLEM TO BE SOLVED:** To prevent the increase of production cost in a drilling process for a circuit board having a good heat radiating characteristic wherein the cost increase is caused by the significant degree of drill edge wear generated during the formation of through holes by the drill.

**SOLUTION:** In the part of the circuit board where the through hole 105 is to be perforated, a first electric insulator 102 is formed over nearly whole part of the insulating board and a second electric insulator 103 having a small filling rate is disposed within the insulating board at least around the through hole 105 to reduce the thickness of the first electric insulator 102 adjacent to the through hole. Thus, the area of the insulating layer cut by the drill edge is reduced so that the degree of drill edge wear is lowered.

